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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,397	12/30/2003	Barrett E. Cole	H0001250-0760 CIP2 (1100.	7566
128	7590	06/28/2006	EXAMINER LAUCHMAN, LAYLA G	
HONEYWELL INTERNATIONAL INC. 101 COLUMBIA ROAD P O BOX 2245 MORRISTOWN, NJ 07962-2245			ART UNIT 2877	PAPER NUMBER

DATE MAILED: 06/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/748,397

Applicant(s)

COLE, BARRETT E.

Examiner

L. G. Lauchman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 and 42-48 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-36 and 42-48 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6/11/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group I (Claims 1-36, 42-48) in the reply filed on 5/03/2006 is acknowledged. Claims 37-41 have been canceled.

Claim Objections

Claim 17 is objected to because of the following informalities: The claim should be dependent on Claim 16 for correct antecedent basis. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-35, 42-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zavracky et al ("Zavracky") (US 6,147,756), in view of Woodberry US (4,956,555).

As to Claims 1, 16, and 42, Zavracky discloses a spectrometer (col. 8, lines 23-41), comprising: a substrate 16 (see Fig. 1); a first spectrometer secured relative to the substrate, the first spectrometer comprising a first tunable optical filter (14, 13, 18) and a first detector 12; a second spectrometer secured relative to the substrate, the second spectrometer comprising a second tunable optical filter and a second detector (col. 8, lines 23-41). The patent does not specifically disclose that the first tunable optical filter

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and the first detector adapted to detect a first tunable range of wavelengths the second tunable optical filter and the second detector adapted to detect a second tunable range of wavelengths. Woodberry teaches an array of spectral band pass filters onto detector arrays (col. 1, lines 62-68), comprising a first multilayer spectral filter 134 positioned in proximity of the first detector 102, a second multilayer spectral filter positioned in proximity of the second detector 104, wherein the first detector detects radiation within a first band of wavelengths, and the second detectors detects radiation within the second wavelength band. (col. 2, lines 9-36). Woodberry also teaches that there could be a larger number of detectors positioned in an array. (see col. 3, lines 17-19). It would have been obvious to one skilled in the art at the time the invention was made to have the two adjacent microspectrometers of Zavracky to be adapted to detect a first tunable range of wavelengths and a second tunable range of wavelengths, respectfully, or in other words, have different spectrometers on the same substrate that can respond to different bands of wavelengths, in order to be able to sense/distinguish between more than one bands of wavelengths by using only one array of spectrometers. Thus, it would make the measurements more efficient and the measurement system more cost effective.

As to Claims 2 and 43, the invention of Zavracky and Woodberry discloses everything as applied to claims 1 and 42 above, and the spectrometers of Zavracky are UV light spectrometers, see (col. 4 , lines 7 and 8), which would include a tunable UV bandpass filter and a UV sensitive detector positioned in proximity to the UV bandpass filter.

As to Claims 3 and 44, the invention of Zavracky and Woodberry discloses everything as

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applied to claim 1 and 43 above, and the second spectrometer is a visible light spectrometer (col. 4, lines 5 and 6) that includes a tunable visible bandpass filter and a visible light sensitive detector positioned in proximity to the visible bandpass filter.

As to Claim 4 and 11, the invention of Zavracky and Woodberry discloses everything as applied to claim 2, above wherein the second spectrometer is a visible light spectrometer (col. 4, lines 5 and 6) that includes a tunable visible bandpass filter and a visible light sensitive detector positioned in proximity to the visible bandpass filter, the UV sensitive detector would be relatively insensitive to visible light.

As to Claim 5, the invention of Zavracky and Woodberry discloses everything as applied to claim 1, and the substrate of Zavracky includes read out electronics that are electrically coupled to the first detector and the second detector (col.7, lines 39-48).

As to Claim 6, the invention of Zavracky and Woodberry discloses everything as applied to claim 1, wherein the first spectrometer is positioned adjacent the second spectrometer to receive different parts of a common light beam (see 6B).

As to Claims 7 and 8, the invention of Zavracky and Woodberry discloses everything as applied to claim 2, wherein the tunable UV bandpass filter comprises a Fabry-Perot filter configured to pass a selectable range of wavelengths of light, the selectable range of wavelengths of light falling within a range of about 4 to about 400 nanometers (col.4, lines 5-6, and 46-65).

As to Claims 9 and 10, the invention of Zavracky and Woodberry discloses everything as applied to claim 3, wherein the visible light bandpass filter comprises a Fabry-Perot filter configured to pass a selectable range of wavelengths of light, the selectable range of wavelengths of light falling within a range of about 400 to about 800 nanometers (col.4, lines 5-6, and 46-65).

As to Claims 12 and 45, the invention of Zavracky and Woodberry discloses everything as applied to claim 11 and 44 above, however, it does not specifically disclose that the UV sensitive detector comprises an AlGaIn detector. The Examiner takes an Official Notice that the AlGaIn detectors are well known in the art as ultraviolet detectors (see US 6,104,074). Therefore, it would be obvious to use those detectors because they are ideally suited for detecting UV parts of the spectrum. The US Patent 6,104,074 describes all the advantages of AlGaIn detectors.

As to claim 13, the invention of Zavracky and Woodberry discloses everything as applied to claim 4, wherein the visible light sensitive detector comprises a photodiode formed within or on the substrate (see col. 4, lines 8 and 9).

As to Claims 14 and 15, the invention of Zavracky and Woodberry discloses everything as applied to claim 4, wherein the UV and visible tunable bandpass filters positioned above the UV and visible sensitive detectors.

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As to Claims 17 and 18, the invention of Zavracky and Woodberry discloses everything as applied to claim 11, wherein the plurality of first spectrometers are arranged in a first linear array and the plurality of second spectrometers are arranged in a second linear array positioned adjacent the first linear array (see Fig. 6B).

As to Claims 46-48, the invention of Zavracky and Woodberry discloses everything as applied to claim 44 above, wherein the second detector is a silicon based detector. As to the filters including ZrO_2 and TiO_2 , it is well known that zirconium oxide absorbs visible light and titanium oxide captures ultraviolet light. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide a UV filter and a visible filter including ZrO_2 and TiO_2 , respectively, in order to block either visible or ultraviolet lights.

As to Claims 19 and 29, Zavracky discloses a microspectrometer, comprising: a visible bandpass filter configured to selectively pass at least a range of visible light, the visible bandpass filter comprising a third plate and a fourth plate that are separated by a second separation gap, where the visible bandpass filter is selectively tunable by adjusting the second separation gap (col. 4, lines 14-28); and a visible light sensitive detector positioned downstream of the visible bandpass filter to receive light passed by the visible bandpass filter (col. 4. lines 28-46). The patent does not specifically disclose a UV bandpass filter configured to selectively pass at least a range of ultraviolet light, the UV bandpass filter comprising a first plate and a second plate that are separated by a first separation gap, where the UV bandpass filter is selectively tunable by adjusting the first

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separation gap; a UV light sensitive detector positioned downstream of the UV bandpass filter to receive light passed by the UV bandpass filter. However, the patent does suggest an array of spectrometers shown in Fig 6B, and it also suggests that the choices of the detectors could extend the range into the ultraviolet. Another patent to Woodberry teaches an array of spectral band pass filters onto detector arrays (col. 1, lines 62-68), comprising a first multilayer spectral filter 134 positioned in proximity of the first detector 102, a second multilayer spectral filter positioned in proximity of the second detector 104, wherein the first detector detects radiation within a first band of wavelengths, and the second detectors detects radiation within the second wavelength band. (col. 2, lines 9-36). Wood berry also suggests that the array would contain larger number of detectors.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide a second microspectrometer in the invention of Zavaracky capable of detecting UV light and having a UV bandpass filter configured to selectively pass at least a range of ultraviolet light, the UV bandpass filter comprising a first plate and a second plate that are separated by a first separation gap, where the UV bandpass filter is selectively tunable by adjusting the first separation gap; a UV light sensitive detector positioned downstream of the UV bandpass filter to receive light passed by the UV bandpass filter. The motivation for doing so would be making more efficient measurements with two spectrometers distinguishing between more than one bands of wavelengths.

As to Claims 20,21, 25, 26, and 34-35, the invention of Zavracky and Woodberry discloses everything as applied to claim 19 and 29, wherein the first plate is at least

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partially reflective and comprises SiO₂ multilayer dielectric mirror stack (see col. 5. lines 1-4, 37-47).

As to Claims 22, and 30-31 the invention of Zavracky and Woodberry discloses everything as applied to claim 19 and 29 above, and the spectrometers of Zavracky are UV light spectrometers, see (col. 4 , lines 7 and 8), which would include a tunable UV bandpass filter and a UV sensitive detector positioned in proximity to the UV bandpass filter.

As to Claim 23, the invention of Zavracky and Woodberry discloses everything as applied to claim 19, however, it does not specifically discloses that the UV sensitive detector comprises an AlGa_N detector. The Examiner takes an Official Notice that the AlGa_N detectors are well known in the art as ultraviolet detectors (see US 6,104,074). Therefore, it would be obvious to use those detectors because they are ideally suited for detecting UV parts of the spectrum. The US Patent 6,104,074 describes all the advantages of AlGa_N detectors.

As to Claims 24, 17, and 28, 32, 33, the invention of Zavracky and Woodberry discloses everything as applied to claim 19 and 29 above, further comprising an amplifier in communication with the light sensitive detector (see Fig.12), the visible light bandpass filter is tunable to bandpass wavelengths that fall within the range of about 400 nanometers to about 500 nanometers, the UV bandpass filter, the UV light sensitive

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detector, the visible bandpass filter, and the visible light sensitive detector are secured to a common substrate (see Fig. 6B).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 36 is rejected under 35 U.S.C. 102(e) as being anticipated by Kreimer et al (US 6,707,548). Kreimer teaches a method of detecting biological materials within a sample, comprising steps of: subjecting the sample to an energy source (Fig. 12, 1112) to induce fluorescence in at least some of the biological material within the sample (1001) ; and simultaneously measuring at least some of the induced fluorescence using a UV light spectrometer and a visible light spectrometer (col. 3, lines 37-45, 55-59; col. 4, lines 31-42, col.6, lines 40-43, col. 7, lines 65-67, col. 8, lines 56-64).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to L. G. Lauchman whose telephone number is (571) 272-2418. The examiner's normal work schedule is 8:00am to 4:30pm (EST), Monday


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through Friday. If attempts to reach examiner by the telephone are unsuccessful, the examiner's supervisor Gregory J. Toatley, Jr. can be reached on (571) 272-2059, ext. 77.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application should be directed to the TC receptionist whose telephone number is (571) 272-1562.



L. G. Lauchman
Primary Examiner
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June 23, 2006